

CLAIMS

1. (Amended) A zirconium-based alloy for the components of the active core of nuclear reactors, comprising niobium, iron, oxygen, carbon and silicon, featured by a structure comprising an α -solid zirconium solution, which comprises nickel, with the following ratio of the constituents (on a weight percent basis):

niobium	0.5 - 3.0
iron	0.005 - 0.02
oxygen	0.03 - 0.12
carbon	0.001 - 0.02
silicon	0.002 - 0.02
nickel	0.003 - 0.02
zirconium	being the balance,

and the structure of the alloy further comprises particles of the β Nb-phase which are sized below 0.1 μm and are uniformly distributed in said α -solid zirconium solution.

2. (Amended) A zirconium-based alloy for the components of the active core of nuclear reactors, according to claim 1 wherein the structure further comprises particles of intermetallics Zr-Fe-Nb.

3. (Amended) A zirconium-based alloy for the components of the active core of nuclear reactors, which comprises constituents taken with the following ratio therebetween (on a weight percent basis):

niobium	0.5 - 3.0
iron	0.005 - 0.02
oxygen	0.03 - 0.12
carbon	0.001 - 0.02
silicon	0.002 - 0.02
nickel	0.003 - 0.02
zirconium	being the balance,

the niobium content of the β Nb-phase particles being within 79 to 95%.

4. (Amended) A zirconium-based alloy for the components of the active core of nuclear reactors, which comprises said constituents taken with the following ratio therebetween (on a weight ratio basis):

niobium	0.5 - 3.0
iron	0.02 - 0.5
oxygen	0.03 - 0.12
carbon	0.001 - 0.02
silicon	0.002 - 0.02
nickel	0.003 - 0.02
zirconium	being the balance,
the iron/niobium ratio being 0.05:0.2.	

5. (Amended) A zirconium-based alloy for components of the active core of nuclear reactors according to claim 3 which comprises said constituents taken with the following ratio therebetween (on a weight ratio basis):

niobium	0.5 - 3.0
iron	0.005 - 0.5
oxygen	0.1 - 0.2
carbon	0.001 - 0.02
silicon	0.002 - 0.1
nickel	0.003 - 0.02
zirconium	being the balance,

with the niobium content of the β -particles in the Nb-phase ranging between 75 and 95%, the α -solid solution being further oxygen-hardened.

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6. (Amended) A zirconium-based alloy for the components of the active core of nuclear reactors according to claim 2, wherein the size of the particles of intermetallics Zr-Fe-Nb is below 0.3 μm .

7. (New) A zirconium-based alloy for the components of the active core of nuclear reactors according to claim 4 wherein the size of the particles of intermetallics Zr-Fe-Nb is below 0.3 μm .

8. (New) A zirconium-based alloy for the components of the active core of nuclear reactors according to claim 5 wherein the size of the particles of intermetallics Zr-Fe-Nb is below 0.3 μm .

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